



Operating Instructions

GS 0850





Manufacturer:

GS Engineering B.V.

manufacturer hydraulic sweepers

Tel: 0031 (0)486-415370

Fax: 0031 (0)486-411325

E-mail: info@gsengineering.nl

Machine:

GS 0850

**Table of Contents**

1	General	4
1.1	User	5
1.2	Liability	5
1.3	Guarantees offered	6
1.4	Documentation	6
1.5	Technical data	7
2	Safety	8
2.1	Safety symbols	9
2.2	Safety aspects	10
2.3	Safety devices	10
2.4	Emergencies	11
2.5	Non-advisable use	11
3	The Sweeping Process	12
3.1	Recommended application	12
3.2	Engine	13
	3.2.1 Starting the engine	13
	3.2.2 Turning off the engine	17
	3.2.3 Refuelling	18
3.3	Brush	19
	3.3.1 Starting and stopping the brush	19
	3.3.2 Configurations	21
	3.3.3 Brush height setting	21
	3.3.4 Slantwise adjustment of brush	22
3.4	Driving	22
4	Maintenance and control	25
4.1	Inspection before sweeping	25
4.2	Inspection after Sweeping	25
4.3	Brush check	25
4.4	Maintenance and repairs	26
	4.4.1 Hydraulic system	26
	4.4.2 Engine	26
5	Accessories	28
5.1	GS Collector Box	28
5.2	Other optional accessories	31
	Maintenance Dates	34
	EC Declaration	35



1. General

These operating instructions intend to set forth the correct use of the GS 0850.

It addresses all aspects that are of relevance to the operation and daily maintenance of the GS Twister. It also pays attention to important aspects in respect of technical maintenance. The operating instructions must be carefully read in order to use the machine correctly and safely.

The following pictograms are used to draw attention to issues that require special attention and/or involve risks for persons, the machine and/or the sweeping process:



Text preceded by this sign requires special attention



Warning

Instructions preceded by this sign warn you about the risk of damage to the machine or failures if the instructions are not carefully followed.



Physical injury

Text preceded by this sign warns of physical injury if the instructions are not carefully followed.



1.1 User

In these operating instructions, 'user' means: Anyone who is put into contact with the GS 0850 or parts thereof under normal operating conditions.

The company or user has to see to it that each user is sufficiently qualified to handle this kind of machines and is able to comply with relevant provisions and safety aspects. A clear distinction is made between two groups:

The user is the person who actually operates the machine in preparation or execution of the production process.

The mechanic is the person who carries out repairs or maintenance works to the machine.

The mechanic must be qualified to perform technical operations. The mechanic must have a solid understanding of technical matters and be able to read technical drawings.

Before the machine is operated or serviced by the operator or mechanic, they must have been adequately instructed. The first instruction is given by specialists from GS. This does not apply when a company already has several machines of the same type or if there is sufficient knowledge available within a company. GS cannot be held responsible in any way for works that have been carried out by an operator who is not or not sufficiently instructed or qualified.

1.2 Liability

These operating instructions and the data they contain have been drawn up with the utmost care. C / S and/or your supplier are not liable for lack of clarity, mistakes and/or damages to the GS 0850 or personal accidents.

In addition, they are not liable for personal accidents caused by incorrect use or attempts to have the sweeper serviced by others that are not qualified mechanics.



1.3 Warranty conditions

The warranty terms, mentioned in the general terms and conditions of delivery, will lapse immediately by operation of law if:

1. Service activities and/or repairs have not been carried out strictly in accordance with the instructions.
2. Repair activities have not been carried out by service mechanics from GS engineering or its official dealer, or have been carried out by the customer's mechanics without written approval from GS.
3. Changes have been made to the delivered product without prior written approval from GS.
4. Other than original GS parts are used.
5. Other than the prescribed lubricants are used.
6. The delivered product is handled improperly, carelessly, incorrectly and/or negligently.
7. The machine is used for other purposes than those it was designed and built for.

1.4 Documentation

Each machine comes with:

- the operating instructions for the GS 0850
- the operating instructions for the engine
- warranty certificate



1.5 Technical Data

Technical data of the GS 0850

Illustration 1

Sweeping width	85 cm
Engine power	Honda GCV160 4,2 kW (5,5hp) or Honda GX200 4,8 kW (6,5hp)
Transmission	Hydro-differential
Speed	1 forward/backward
Brush drive	Hydro
Brush rotating left/right	Yes
Adjustable brush	1 left/right
Brush diameter	320 mm



2. Safety

The GS 0850 has been manufactured in accordance with regulations that are currently applicable. Nevertheless, this machine could cause dangers to man and machine if:

- it is not operated in accordance with the operating instructions.
- it is not operated by qualified personnel.
- it is changed or used inexpertly.
- the safety instructions are not being observed.

Therefore, anyone who is involved in the operation, maintenance and/or repair of the machine has to read and follow the safety instructions.

If so desired, this could be confirmed by the user's signature.

Apart from the requirements and regulations mentioned in these operating instructions, the following apply:

- general safety requirements;
- land specific regulations



2.1 Safety symbols

The safety symbols on the machine must be kept complete and legible. Damaged and illegible safety symbols must be replaced by new ones.



1. Applied to the case of the machine, on the side, "hearing protection must be worn"



2. Applied to the case of the machine, behind the engine, "read operating instructions before use"



3. Applied to the case of the machine, behind the engine, "Eye protection must be worn"



4. Applied to the case of the machine, near the switch with the indications:
 - "Arrow forward"(forward position of brush)
 - "Horizontal line" (neutral position)
 - "Arrow backward" (reverse position of brush)



5. Applied to the top side of the push bar with the indications:
 - "Arrow forward" (driving in reverse)
 - "Horizontal line" (neutral position)
 - "Arrow backwards" (driving forward)



6. Applied on the backside of the chassis case; this is the CE mark and serial number.



2.2 Safety Aspects

Safety aspects and pictograms included in these operating instructions as well as the safety symbols on the machine must always be observed by the operator. The procedures laid down in the operating manual must always be executed in the correct order.

- When operating the machine, the operator must always see to proper visibility so he can see the work area and the machine. He has to make sure that his attention is not distracted from his work and always has to act according to circumstances.
- With each movement the machine makes, the operator must be certain that there are no persons near the machine.
- It is not permitted to use the machine to transport people.
- When using the machine, safety glasses must be worn.
- When using the machine, hearing protection must be worn.
- The operator's clothing must be tight-fitting, preferably no loose clothing. In addition, the operator must wear sturdy shoes.
- All maintenance, repairs, remedy of failures and other similar activities not mentioned in these operating instructions must be carried out by a mechanic.
- If the operator detects any defect or fault to the machine, a mechanic has to be informed immediately.

2.3 Safety Precautions

The machine is equipped with an overload protection.
The controls for forward and reverse motion must be held down during the movement. If the controls are released, the machine will stop automatically (see also paragraph 3.4).



2.4 Emergencies

An emergency means a situation in which people, animals and/or the machine are in danger or danger threatens them. If an emergency arises, the operator must bring the machine to a standstill and turn off the engine.

In case of damages to the machine or other situations in which machine parts might have been affected, the machine must be thoroughly checked. Only this way it can be guaranteed that also after an emergency, it is safe to operate the machine.

2.5 Non-advisable use



It is not allowed to sweep materials that are dangerous to human health in any way whatsoever.



It is advised not to drive the GS 0850 without tools.



Do not use the sweeper in closed spaces.



3. The Sweeping Process

3.1 Recommended application

The sweeper is mainly used for cleaning straight surfaces. The material to be swept will largely consist of leaves, rubbish, snow, sand, gravel or a combination hereof.



When sweeping certain materials, (large) clouds of dust may be raised. The use of protective glasses is therefore compulsory.



Particles might fly up due to the sweeping method. The operator has to make sure that there are no persons or animals in the direct surroundings of the machine.



Under normal circumstances, the machine generates a noise level of +/- 96 dB (A). Prolonged exposure to this sound level can result in serious hearing injury. This is why hearing protection must be used.



3.2 Engine

3.2.1 Starting the engine



ATTENTION: GS 0850 is available with two different engines:

- Honda GX 200
- Honda GCV 160



Check the engine's oil level each time before using the GS 0850.

Type of engine oil: **SAE 5W40**

Capacity of the Honda GX 200 engine: 0.5 litre

Capacity of the Honda GCV 160 engine: 0.45 litre



Before the operator starts the engine, the machine must be checked and found in good order.



Upon starting the engine, the brush drive must be turned off. First turn off the brush, otherwise unexpected and dangerous situations might arise.



The next steps are necessary to start the **Honda GX 200**:

1. Check if the brush drive is turned off. Place the sweeper switch in the neutral position.
2. Put the accelerator lever in its top position indicated by the hare. (Illustration 1)



Illustration 1

3. Put engine on choke. (Illustration 2)

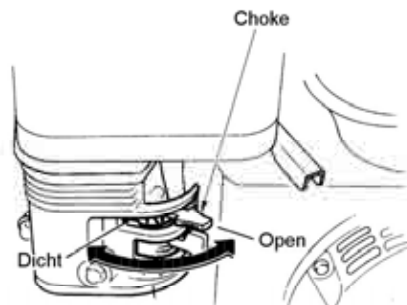


Illustration 2



4. Take hold of the starter handle (see Illustration 3) and slowly pull until you feel resistance. Firmly pull the cord to get through the compression, avoid backfire and start the engine. Turn off the choke when the engine is running.

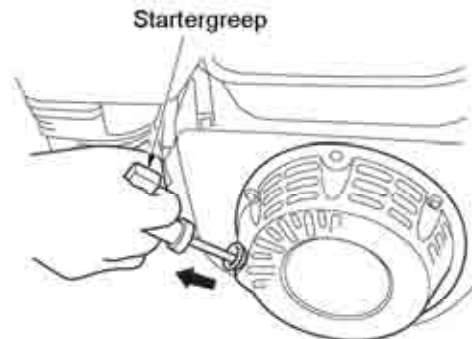


Illustration 3

5. Put the accelerator handle on fast for normal use.

The next steps are necessary to start the **Honda GCV 160**:

1. Put the fuel cock on ON. (see Illustration 1)

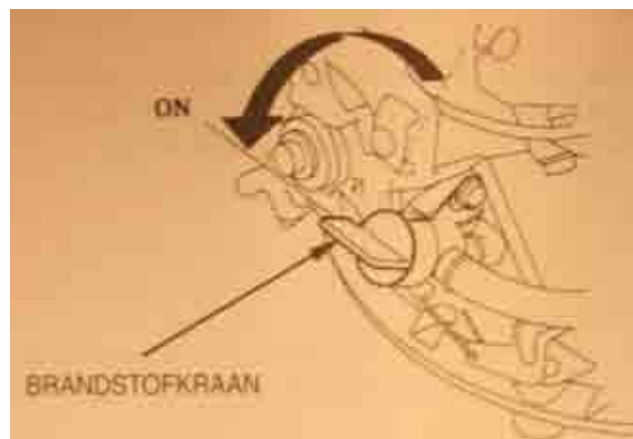



Illustration 1



2. Push the adjusting handle towards the CHOKE position. Indicated by the choke symbol () on the adjusting handle. (see Illustration 2)



ATTENTION: Do not use the choke when the engine is hot or when the air temperature is high.



Illustration 2

3. Slowly pull the starter handle until you feel resistance, then pull firmly. (see Illustration 3)



ATTENTION: Do not allow the starter handle to swing back against the engine. Carefully return the handle to avoid damage to the starter.

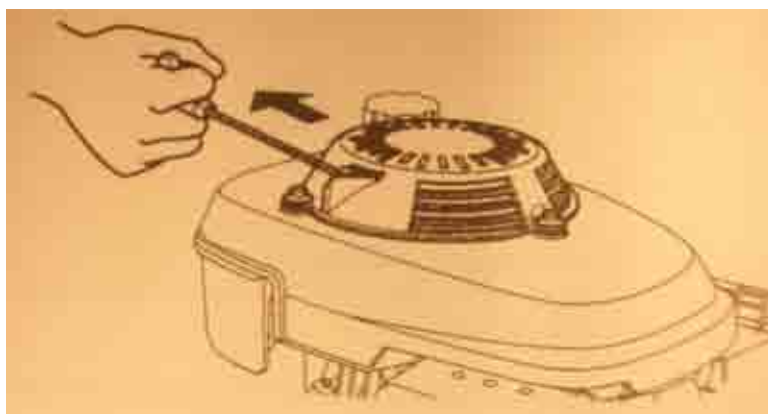


Illustration 3



4. Push the adjusting handle on the push bar towards the "turtle" (slow position) or the "hare" (fast position). (see Illustration 5)



Illustration 5

3.2.2. Turning off the engine

The following action must be performed to turn off the **Honda GX 200** engine:

The engine can easily be turned off by turning the switch on the engine to OFF. Turn to the left. (see Illustration 1)



Illustration 1



Do not stop the engine by choking. This could cause backfire and could damage the engine.



Follow the procedure below to turn off the **Honda GVC 160** engine:

Push the adjusting handle on the push bar until it reaches the STOP sign. (see Illustration 2)



Illustration 2



Do not stop the engine by choking. This could cause backfire and could damage the engine.

3.2.3. Refuelling

The engine runs on normal unleaded car petrol: **Euro unleaded**



Use fresh petrol.



Do not mix petrol with oil.



Do not replenish the fuel tank in a closed space



Do not replenish the fuel tank when the engine is running. Wait at least two minutes for the engine to cool down before refuelling.



Never turn on the engine when fuel has been spilled. Keep the engine away from the spilled fuel and avoid ignition sources. Wait for the fuel to evaporate.

3.3 Brush

3.3.1 Starting and stopping the brush

A control handle has been mounted bottom left next to the push bar to switch the brush on and off.

The GS 0850 has 3 brush positions:

1. To activate the brush, put the handle on "forward" (see Illustration 1) The brush will now start to rotate in a forward direction.



Illustration 1



- Put the handle on "neutral" for the neutral position, which also switches the brush off (see Illustration 2). Indicated by the horizontal line on the sticker (see Illustration 3)



Illustration 2



Illustration 3

- For backward position, put handle on "backward" (see Illustration 4). The brush will now start to rotate in a backward direction. Hold on to the handle in this position, if not it releases.



Illustration 4



The brush is equipped with an overload protection. If the (sweeping) force requested from the brush is too high, it will stop as long as this force is requested.



If the brush jams, move the machine back. If the brush continues to be jammed, turn off the machine and have it checked by a mechanic. Never check the brush when the machine is running.



3.3.2 Configurations

The GS 0850 has two different settings. The right setting will result in an optimum sweeping result.

First of all, the distance between the brush and the surface to be swept can be adjusted: the brush height-setting.

Secondly, it is possible to place the brush slantwise in relation to the direction of movement. When no collection hopper is used, a larger surface can be cleaned.

3.3.3 Brush height setting

The height can be adjusted by using the turning handles (see Illustration 1). With these turning handles it is possible to adjust the height of the furrow wheels. With an optimum setting, the sweeping surface of the brush has a width of approx. 40 mm. Indicated by the black arrow (Illustration 1).

The turning handles must be turned on both sides to adjust the height of the brush equally.



Illustration 1



When the height of the brush is adjusted in such a way that it sweeps the sweeping surface extending over a bigger length, it could result in increased brush wear. This shortens the brush's life.

3.3.4 Angle adjustment of the brush

The brush can be placed in an angled position in relation to the direction of movement. To place the brush in an angled position or release the brush from its angled position, lift the pin and turn the brush. (see Illustration 1)



Illustration 1



Illustration 2

Lower the pin after that (see Illustration 2).
If the pin does not lower completely, turn the brush slightly until the pin lowers.



The angle of the brush can only be adjusted when the engine is not running.

3.4 Driving

The machine has its own hydraulic drive. This enables it to make forward and backward movements.

To move, it is necessary to keep the appropriate movement handle in a certain position; the control device is the handle located on top of the pushing bar. When the handle is released, the machine will stop moving immediately. An illustration has been affixed to the push bar of the machine as shown on the following illustrations.



The GS 0850 has three different movement positions:

1. Pull the handle towards you for the forward movement. The machine will now move forward. (see Illustration 1)



Illustration 1

2. When the handle is left in the middle, the machine is in neutral. The machine will not move. (see Illustration 2)
The neutral position is indicated by the horizontal line on the sticker. (see Illustration 3)



Illustration 2



Illustration 3



3. For backward position, push the handle away from you. The machine will now move backward. (see Illustration 4)



Illustration 4



It is not allowed to install devices to lock the control that controls the machine's movements in a certain position. The installation of such device or any other device of the same purport will result in cancellation of the guarantee.



4. Maintenance and control

4.1 Check before starting to work with the GS 0850.

Before starting any activity, several points must be checked first:

- check whether the machine is in good condition. For instance: check if there are any loose parts due to vibration.
- check the air pressure of the tyres (0.8 bar)
- check if there are no persons or animals in the immediate surroundings of the GS 0850.

A visual check is enough. After prolonged use, lengthy standstill of more than 30 days and unexpected circumstances, the sweeper must be thoroughly checked.



Bolts and nuts must be checked regularly for tightness

4.2 Maintenance after sweeping

After sweeping, the machine can be cleaned with water. The use of a high-pressure spraying device is allowed. During cleaning, the engine of the GS 0850 must be turned off.



During cleaning, the engine of the sweeper must be turned off.

4.3 Brush check

Depending on the use, the brush hairs are liable to wear. Hairs are also pulled out by the sweeping process.

As a result, it could be necessary to adjust the height of the brush. In case of severe wear, several parts where a lot of hairs are missing from the brush or poor sweeping results, the brush must be replaced.



4.4 Maintenance and repairs

Maintenance and repairs to the machine must be carried out by a mechanic.

4.4.1 Hydraulic system

Maintenance and repairs to the hydraulic system must be carried out by a mechanic. The hydraulic hoses installed on the machine must be replaced once every 5 years.



Do not use the machine when the hydraulic lines are damaged. After a mechanic has replaced the hydraulic lines, the machine can be used again.



If injuries do occur however in case of a leaking line, do not use the machine and seek medical advice immediately.



Check the engine's hydraulic oil level each time before using the GS 0850.

Type of hydraulic oil **HLP.46**
(available capacity of 4.5 litres)



Change the hydraulic oil after the first 50 hours. After that, change the oil at least once a year or after every 300 hours of use. The oil filter must also be changed.

4.4.2 Engine

The machine is equipped with an engine that must be serviced at regular intervals. Have the engine checked by a mechanic once a year or after a standstill of more than 30 days.



Check the engine's oil level each time before using the GS 0850. Type of engine oil: **SAE 5W40**
Capacity of the Honda GX 200 engine: 0.5 litre
Capacity of the Honda GCV 160 engine: 0.45 litre



For more detailed information about the engines of the GS 0850, please refer to the enclosed manuals of these engines.



5 Accessories

5.1 GS Collector Box

The most commonly used accessory is the GS Collector Box. It is 85 cm wide.
(see Illustration 1)

The GS collector box is not included in the machine; however, you can choose to order it.



Illustration 1

The machine is equipped with two hooks (chrome colour) on both sides to attach the collector box.

The machine must be switch off when placing the collector box.

Take the following steps to attach the GS collector box to the machine.

1. Take hold of both handles on top of the collector box and pull them out. (see Illustration 1)
The two bars on the inside will also slide up. (see Illustration 2)



Illustration 1



Illustration 2

2. Now you can lift the collector box and slide it on the mounting supports. (see Illustration 3)



Illustration 3



Illustration 4 (Final result)

The distance between the lower side of the collector box and the sweeping surface (ground clearance) can be adjusted by means of the turning handles. (see Illustration 6)

After mounting the collector box, you must adjust this distance to ± 20 mm (see Illustration 5). Depending on the material to be swept, you can place the collector box a little higher if necessary.



Illustration 5



Illustration 6



To empty the collector box, follow this simple procedure: take hold of the handle of the collector box (the handle that points towards the push bar) and pull towards you. (see Illustration 7)

The machine must be turned off when emptying the collector box.



Illustration 7

If you want to remove the collector box, you can lift it from the mounting supports. Take hold again of both handles of the collector box and pull them towards you.

If the machine is used without the collector box, the mounting supports must be removed. Failure to remove them could result in accidents.



When adjusting the height of the collector box, you also have to adjust the height of the brushes. Always observe the clearance of +/- 20 mm (measured from the surface to be swept till the lower side of the collector box).



5.2 Other optional accessories

1. GS hydraulic side brush (see illustration 1)



(Illustration 1)

2. GS snow plow 90 cm. (see Illustration 2)



(Illustration 2)

3. GS manure scraper or
GS manure scraper 105 cm (see Illustration 3)



(Illustration 3)



4.GS skid chain (see Illustration 4)



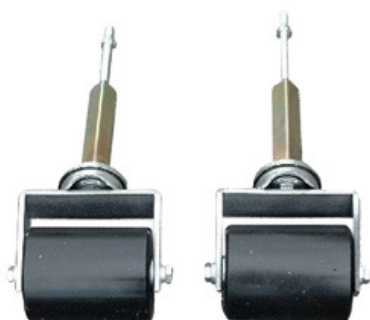
(Illustration 4)

5.GS sulky (see Illustration 5)



(Illustration 5)

6.GS wide caster wheels (see Illustration 6)



(Illustration 6)



7. GS set of broad tyres 16x6.50x8 or
GS exchange set tyres 16x6.50x8 (see Illustration 7)



(Illustration 7)



Maintenance Dates



EC DECLARATION OF CONFORMITY FOR MACHINES
(Directive 89/392/CEE, Annex II, paragraph A)

Wilser Constructions
Ravenstein

Hereby declares that sweeper
GS 0850

- conforms to the provisions of the Directive relating to machinery (directive 89/392/CEE, as amended lately) and the national legislation implementing this directive;

and furthermore declares that

- the following (parts of) harmonized standards have been applied:

EN 292-1: Machine safety, part 1

Made in Ravenstein

, 12 Februari 2008

A.A.W. Giesbers
Technical director